## **RAW SEQUENCE LISTING**

The Biotechnology Systems Branch of the Scientific and Technical Information Center (STIC) no errors detected.

Application Serial Number: 10/548, 748Source: PCTDate Processed by STIC: 09/23/2005

## ENTERED



PCT

**RAW SEQUENCE LISTING**PATENT APPLICATION: **US/10/548,748**DATE: 09/23/2005

TIME: 14:52:53

Input Set : A:\Sequence listing - 12810-00137-US.txt

Output Set: N:\CRF4\09232005\J548748.raw

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3 <110> APPLICANT: Frank, Markus
             Kogel, Karl-Heinz
             Hueckelhoven, Ralph
     7 <120> TITLE OF INVENTION: METHOD FOR INCREASING RESISTANCE AGAINST STRESS FACTORS IN
PLANTS
     9 <130> FILE REFERENCE: 12810-00137-US
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C--> 11 <140> CURRENT APPLICATION NUMBER: US/10/548,748
C--> 11 <141> CURRENT FILING DATE: 2005-09-08
    11 <150> PRIOR APPLICATION NUMBER: PCT/EP2004/002436
    12 <151> PRIOR FILING DATE: 2004-03-10
    14 <150> PRIOR APPLICATION NUMBER: DE 103 11 118.2
    15 <151> PRIOR FILING DATE: 2003-03-12
    17 <160> NUMBER OF SEQ ID NOS: 63
    19 <170> SOFTWARE: PatentIn version 3.3
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    22 <211> LENGTH: 744
    23 <212> TYPE: DNA
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    28 <222> LOCATION: (1)..(741)
    29 <223> OTHER INFORMATION: coding for BI1-protein
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                                             10
    36 cac gac tee etc aag aac tte ege cag ate tee eec gee gtg cag tee
                                                                           96
    37 His Asp Ser Leu Lys Asn Phe Arg Gln Ile Ser Pro Ala Val Gln Ser
    40 cac etc aag etc gtt tac etg act eta tge ttt gea etg gee tea tet
                                                                           144
    41 His Leu Lys Leu Val Tyr Leu Thr Leu Cys Phe Ala Leu Ala Ser Ser
                35
    44 gcc gtg ggt gct tac cta cac att gcc ctg aac atc ggc ggg atg ctg
    45 Ala Val Gly Ala Tyr Leu His Ile Ala Leu Asn Ile Gly Gly Met Leu
    48 aca atg ctc gct tgt gtc gga act atc gcc tgg atg ttc tcg gtg cca
                                                                           240
    49 Thr Met Leu Ala Cys Val Gly Thr Ile Ala Trp Met Phe Ser Val Pro
    50 65
                             70
                                                 75
    52 gtc tat gag gag agg aag agg ttt ggg ctg ctg atg ggt gca gcc ctc
                                                                           288
    53 Val Tyr Glu Glu Arg Lys Arg Phe Gly Leu Leu Met Gly Ala Ala Leu
    56 ctg gaa ggg gct tcg gtt gga cct ctg att gag ctt gcc ata gac ttt
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    57 Leu Glu Gly Ala Ser Val Gly Pro Leu Ile Glu Leu Ala Ile Asp Phe
    58
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                                        105
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62 115 120 125 64 ggg tgc ttc tct ggc gcc gcc atc atc gcc aag cgc agg gag	tac ctg 432
65 Gly Cys Phe Ser Gly Ala Ala Ile Ile Ala Lys Arg Arg Glu	
66 130 135 140	_
68 tac ctc ggt ggc ctg ctc tcg tct ggc ctg tcg atc ctg ctc	
69 Tyr Leu Gly Gly Leu Leu Ser Ser Gly Leu Ser Ile Leu Leu 70 145 150 155	Trp Leu 160
70 145 150 150 155 72 cag ttt gtc acg tcc atc ttt ggc cac tcc tct ggc agc ttc	
73 Gln Phe Val Thr Ser Ile Phe Gly His Ser Ser Gly Ser Phe	
74 165 170	175
76 gag gtt tac ttt ggc ctg ttg atc ttc ctg ggg tac atg gtg	
77 Glu Val Tyr Phe Gly Leu Leu Ile Phe Leu Gly Tyr Met Val	Tyr Asp
78 180 185 190	tag atg 624
80 acg cag gag atc atc gag agg gcg cac cat ggc gac atg gac 81 Thr Gln Glu Ile Ile Glu Arg Ala His His Gly Asp Met Asp	
82 195 200 205	1,1110
84 aag cac gcc ctc acc ctc ttc acc gac ttt gtt gcc gtc ctc	gtc cga 672
85 Lys His Ala Leu Thr Leu Phe Thr Asp Phe Val Ala Val Leu	Val Arg
86 210 215 220	
88 gtc ctc atc atc atg ctc aag aac gca ggc gac aag tcg gag	
89 Val Leu Ile Ile Met Leu Lys Asn Ala Gly Asp Lys Ser Glu 90 225 230 235	Asp Lys 240
92 aag aag agg aag agg ggg tcc tga	744
93 Lys Lys Arg Lys Arg Gly Ser	
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94	15 Cln Ser Ser Ser
94	15 1 Gln Ser 2 Ser Ser 2 Met Leu 3 Val Pro 80
94	15 I Gln Ser O Ser Ser V Met Leu Val Pro 80 A Ala Leu
94	15 I Gln Ser O Ser Ser V Met Leu Val Pro 80 A Ala Leu 95
94	15 I Gln Ser O Ser Ser V Met Leu Val Pro 80 Ala Leu 95 Asp Phe
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	Tyr	ьeu	GIY	GIY	Leu		ser	ser	GIĀ	ьeu		тте	ьeu	Leu	rrp		
	145				_	150				_	155		_	_,		160	
	Gln	Phe	Val	Thr		He	Phe	Gly	Hıs		Ser	GIY	Ser	Pne		Phe	
134					165					170					175		
136	Glu	Val	$\mathtt{Tyr}$	Phe	Gly	Leu	Leu	Ile	Phe	Leu	Gly	$\mathtt{Tyr}$	Met	Val	$\mathtt{Tyr}$	Asp	
137				180					185					190			
139	Thr	Gln	Glu	Ile	Ile	Glu	Arg	Ala	His	His	Gly	Asp	Met	Asp	Tyr	Ile	
140			195					200					205				
142	Lys	His	Ala	Leu	Thr	Leu	Phe	Thr	Asp	Phe	Val	Ala	Val	Leu	Val	Arg	
143		210					215					220					
145	Val	Leu	Ile	Ile	Met	Leu	Lys	Asn	Ala	Gly	Asp	Lys	Ser	Glu	Asp	Lys	
146	225					230					235					240	
148	Lys	Lys	Arg	Lys	Arg	Gly	Ser										
149	-	•	_	•	245	•											
152	<210	)> SI	EO II	ON C	: 3												
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-	<213				Aral	oidor	osis	t.ha]	liana	a							
	<220						,,,,,	0		~							
	<221				CDS												
	<222		•			(74	11)										
	<223							dina	for	BT1.	-nroi	ein					
	<400					11011		g	LOI	בבע	PIO.						
	atg					taa	++0	++0	ant.	+ a+	<b>a</b> = =	aat	aat	200	202	200	48
	Met	_							_					_	-	_	40
165		Asp	міа	FILE	5	ser	FILE	FIIE	Asp	10	GIII	PIO	GIY	per	15	Ser	
	1	200	+-+	~~+	_	a++		224	++-		~~~	-++	+ ~+			~++	96
	tgg Trp																90
	пр	ser	TÄT	20	Ser	ьеu	пуъ	ASII	25	Arg	GIII	TIE	ser	30	Ala	vai	
169						~~~	~+ L	L - L				<b>+~+</b>	+~+		a++	~+~	144
	cag																144
	Gln	ASI		Leu	гуѕ	Arg	vai	_	Leu	Thr	ьeu	Cys	_	Ala	ьeu	vai	
173			35					40				L	45				100
	gcg																192
	Ala		Ala	Pne	GIY	Ala		ьeu	HIS	vaı	ьeu		Asn	тте	GIA	GIY	
177		50					. 55					60					
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	Ile	Leu	Thr	Thr	Ile		Cys	Ile	Gly	Thr		Ile	Trp	Leu	Leu		
181	65					70					75					80	
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	Cys	Pro	Pro	$\mathtt{Tyr}$		His	Gln	Lys	Arg		Ser	Leu	Leu	Phe		Ser	
185					85					90					95		
	gct	_		_		_		_			_				_		336
		Val	Leu	Glu	Gly	Ala	Ser	Val	_	Pro	Leu	Ile	Lys	Val	Ala	Ile	
188	Ala								105					110			
189				100													
189 191	gat	gtt	gac	100 cca					act					act			384
189 191		gtt	gac	100 cca					act					act			384
189 191	gat	gtt	gac	100 cca					act					act			384
189 191 192 193	gat	gtt Val	gac Asp 115	100 cca Pro	Ser	Ile	Leu	Ile 120	act Thr	Ala	Phe	Val	Gly 125	act Thr	Ala	Ile	384 432

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200	Tyr	Leu	Tyr	Leu	Gly	Gly	Leu	Leu	Ser	Ser	Gly	Leu	Ser	Met	Leu	Met	
201	145					150					155					160	
															atc		528
204	Trp	Leu	Gln	Phe	Ala	Ser	Ser	Ile	Phe	Gly	Gly	Ser	Ala	Ser	Ile	Phe	
205					165					170					175		
															atg		576
208	Lys	Phe	Glu	Leu	Tyr	Phe	Gly	Leu	Leu	Ile	Phe	Val	Gly	Tyr	Met	Val	
209				180					185					190			
	_	-						_	_	_				_	atg	_	624
	Val	Asp		Gln	Glu	Ile	Ile		Lys	Ala	His	Leu	Gly	Asp	Met	Asp	
213			195					200					205				
		_			_	_					-		_	_	gtg		672
216	Tyr		Lys	His	Ser	Leu		Leu	Phe	Thr	Asp		Val	Ala	Val	Phe	
217		210					215					220					
															gaa		720
		Arg	Ile	Leu	Ile		Met	Leu	Lys	Asn		Ala	Asp	Lys	Glu		
	225					230					235					240	
								tgag	3999	atg 1	taaag	gtaaa	at ti	taact	ttat	:	771
	Lys	Lys	Lys	Lys		Arg	Asn										
225					245												
227	ggtt	tgtta	atc (	atata	ar aa	cc ac	TETE	raag:	a tai	2 - 1	rrar	Tam.	マヨベモノ		~ > + + /		× 4 1
000			-					_			-	_			_		
	_	_	gtt (	cca	ctaaa	aa ag	ggat	etget	tg1	ttc	actt	ctg	cacaa	agt a	accat	cttca	891
231	gatt	gta	gtt i	ccad	ctaaa cgagt	aa ag tg tt	ggato ggtto	etgel ettel	tgi	ttcata	actt aaac	ctg	cacaa tgtt	agt a	accat caaga	cttca agtttg	891 951
231 233	gatt gtt	tgtaa ctact	gtt i aat g iga i	cca gacto tgca	ctaaa cgagt atctt	aa ag ig ti ia co	ggato ggtto caago	etgel ettel etaag	tgi tti g aai	ttcata cata	actt aaac gtag	ctgo ttt! gaaa	cacaa tgtte aatga	agt a ctt i ata a	accat caaga atcct	cttca agtttg gttta	891 951 1011
231 233 235	gatt gtt aatt	tgtaa ctact tttct	gtt i aat g iga i iaa a	ccad gacto tgca aatgt	ctaaa cgagt atctt cgtgo	aa ag ig ti ia co	ggato ggtto caago	etgel ettel etaag	tgi tti g aai	ttcata cata	actt aaac gtag	ctgo ttt! gaaa	cacaa tgtte aatga	agt a ctt i ata a	accat caaga	cttca agtttg gttta	891 951
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231 233 235 238 239 240 241 243 244 245 247 248 250 251 253 254 256 257	gatt gttc aatt <210 <211 <400 Met 1 Trp Gln Ala Ile 65	ctact cact c	Ett ( aat (	gactoring at grant at	ctaaacgagt atctt cgtgo : 4 17 Aral 4 Ser 5 Ser Lys Gly	aa ag tg tt ta cc ca tt oidop Ser Leu Arg Ala Gly 70	ggate caage ctcae osis Phe Lys Val Tyr 55 Cys	thal Phe Asn Tyr 40 Leu	t tgi t tti g aad a aad Asp Phe 25 Leu His	Ser 10 Arg Thr Val	Gln Gln Leu Leu Met	Pro Ile Cys Trp 60 Ile	Gly Ser Cys Asn Trp	ser Pro 30 Ala Ile Leu	Arg 15 Ala	Ser Val Gly Ser 80	891 951 1011
231 233 235 238 239 240 241 243 244 245 247 248 250 251 253 254 256 257	gatt gttc aatt <210 <211 <400 Met 1 Trp Gln Ala Ile 65	ctact cact c	Ett ( aat (	gactoring at grant at	ctaaacgagt atctt cgtgo : 4 17 Aral 4 Ser 5 Ser Lys Gly	aa ag tg tt ta cc ca tt oidop Ser Leu Arg Ala Gly 70	ggate caage ctcae osis Phe Lys Val Tyr 55 Cys	thal Phe Asn Tyr 40 Leu	t tgi t tti g aad a aad Asp Phe 25 Leu His	Ser 10 Arg Thr Val	Gln Gln Leu Leu Met	Pro Ile Cys Trp 60 Ile	Gly Ser Cys Asn Trp	ser Pro 30 Ala Ile Leu	Arg 15 Ala Leu Gly	Ser Val Gly Ser 80	891 951 1011
231 233 235 238 240 241 243 244 245 247 248 250 251 253 254 256 257 259 260	gatt gttc aatt <210 <212 <400 Met 1 Trp Gln Ala Ile 65 Cys	ctact ctact cttct ctct cts ctact cttct ctct c	EXECUTE ALA TYP HIS ALA Thr Pro	gactoring at grant and a second at grant and	ctaaacgagtatcttacttgtgc: 4 47 Aral 4 Ser 5 Ser Lys Gly Ile Glu 85	oidor Ser Leu Arg Ala Gly His	ggato caago ctcao psis Phe Lys Val Tyr 55 Cys	thall Phe Asn Tyr 40 Leu Ile	t tgi t tti g aai a aaa Liana Asp Phe 25 Leu His Gly Arg	Ser 10 Arg Thr Val Thr Leu	Gln Leu Leu Met 75 Ser	Pro Ile Cys Trp 60 Ile Leu	Gly Ser Cys 45 Asn Trp Leu	Ser Pro 30 Ala Ile Leu Phe	Arg 15 Ala Leu Gly Leu Val	Ser Val Gly Ser 80 Ser	891 951 1011
231 233 235 238 240 241 243 244 245 247 248 250 251 253 254 256 257 259 260	gatt gttc aatt <210 <212 <400 Met 1 Trp Gln Ala Ile 65 Cys	ctact ctact cttct ctct cts ctact cttct ctct c	EXECUTE ALA TYP HIS ALA Thr Pro	gactoring at grant and a second at grant and	ctaaacgagtatcttacttgtgc: 4 47 Aral 4 Ser 5 Ser Lys Gly Ile Glu 85	oidor Ser Leu Arg Ala Gly His	ggate catget caage ctcae psis Phe Lys Val Tyr 55 Cys	thall Phe Asn Tyr 40 Leu Ile	t tgi t tti g aai a aaa Liana Asp Phe 25 Leu His Gly Arg	Ser 10 Arg Thr Val Thr Leu	Gln Leu Leu Met 75 Ser	Pro Ile Cys Trp 60 Ile Leu	Gly Ser Cys 45 Asn Trp Leu	Ser Pro 30 Ala Ile Leu Phe	Arg 15 Ala Leu Gly Leu Val	Ser Val Gly Ser 80 Ser	891 951 1011
231 233 235 238 240 241 243 244 245 247 250 251 253 256 257 260 262 263	gatt gttc aatt <210 <211 <400 Met 1 Trp Gln Ala Ile 65 Cys	ctact cact	EQUEINGTHE Ala Tyr His 35 Ala Thr Pro	CCac gacto tgca atgt NO: H: 24 PRT ISM: NCE: Phe Asp 20 Leu Phe Thr Tyr Glu 100	ctaaacgagtatcttatcgaggtgc: 4 47 Aral 4 Ser 5 Ser Lys Gly Ile Glu 85 Gly	oidor Ser Leu Arg Ala Gly 70	ggate catcade cassis Phe Lys Val Tyr 55 Cys Gln Ser	thall than Tyr 40 Leu Ile Lys	t tgic ttig aai aaa aaa aaa aaa aaa aaa aaa aaa a	Ser 10 Arg Thr Val Thr Leu 90	Gln Gln Leu Met 75 Ser Leu	Pro Ile Cys Trp 60 Ile Leu Ile	Gly Ser Cys Asn Trp Leu Lys	Ser Pro 30 Ala Ile Leu Phe Val 110	Arg 15 Ala Leu Gly Leu Val	Ser Val Gly Ser 80 Ser Ile	891 951 1011

**RAW SEQUENCE LISTING**PATENT APPLICATION: **US/10/548,748**DATE: 09/23/2005

TIME: 14:52:53

Input Set : A:\Sequence listing - 12810-00137-US.txt
Output Set: N:\CRF4\09232005\J548748.raw

268 Ala Phe Val Cys Phe Ser Ala Ala Ala Met Leu Ala Arg Arg Glu 135 269 130 271 Tyr Leu Tyr Leu Gly Gly Leu Leu Ser Ser Gly Leu Ser Met Leu Met 150 155 274 Trp Leu Gln Phe Ala Ser Ser Ile Phe Gly Gly Ser Ala Ser Ile Phe 165 170 277 Lys Phe Glu Leu Tyr Phe Gly Leu Leu Ile Phe Val Gly Tyr Met Val 185 180 280 Val Asp Thr Gln Glu Ile Ile Glu Lys Ala His Leu Gly Asp Met Asp 195 200 283 Tyr Val Lys His Ser Leu Thr Leu Phe Thr Asp Phe Val Ala Val Phe 215 220 210 286 Val Arg Ile Leu Ile Ile Met Leu Lys Asn Ser Ala Asp Lys Glu Glu 230 235 289 Lys Lys Lys Arg Arg Asn 290 293 <210> SEQ ID NO: 5 294 <211> LENGTH: 1160 295 <212> TYPE: DNA 296 <213> ORGANISM: Nicotiana tabacum 298 <220> FEATURE: 299 <221> NAME/KEY: CDS 300 <222> LOCATION: (1)..(747) 301 <223> OTHER INFORMATION: coding for BI1-protein 303 <400> SEQUENCE: 5 304 atg gag tet tge aca teg tte tte aat tea eag teg geg teg tet ege 48 305 Met Glu Ser Cys Thr Ser Phe Phe Asn Ser Gln Ser Ala Ser Ser Arg 306 308 aat cgc tgg agt tac gat tct ctt aag aac ttc cgc cag atc tct ccc 96 309 Asn Arg Trp Ser Tyr Asp Ser Leu Lys Asn Phe Arg Gln Ile Ser Pro 25 20 312 ttt gtt caa act cat ctc aaa aag gtc tac ctt tca tta tgt tgt gct 144 313 Phe Val Gln Thr His Leu Lys Lys Val Tyr Leu Ser Leu Cys Cys Ala 314 40 192 316 tta gtt gct tcg gct gct gga gct tac ctt cac att ctt tgg aac att 317 Leu Val Ala Ser Ala Ala Gly Ala Tyr Leu His Ile Leu Trp Asn Ile 55 320 ggt ggc tta ctt acg aca ttg gga tgt gtg gga agc ata gtg tgg ctg 240 321 Gly Gly Leu Leu Thr Thr Leu Gly Cys Val Gly Ser Ile Val Trp Leu 70 288 324 atg gcg aca cct ctg tat gaa gag caa aag agg ata gca ctt ctg atg 325 Met Ala Thr Pro Leu Tyr Glu Glu Gln Lys Arg Ile Ala Leu Leu Met 85 328 qca gct gca ctg ttt aaa gga gca tct att ggt cca ctg att gaa ttg 336 329 Ala Ala Ala Leu Phe Lys Gly Ala Ser Ile Gly Pro Leu Ile Glu Leu 105 332 gct att gac ttt gac cca agc att gtg atc ggt gct ttt gtt ggt tgt 384 333 Ala Ile Asp Phe Asp Pro Ser Ile Val Ile Gly Ala Phe Val Gly Cys 115 120

RAW SEQUENCE LISTING ERROR SUMMARY PATENT APPLICATION: US/10/548,748

DATE: 09/23/2005 TIME: 14:52:54

Input Set : A:\Sequence listing - 12810-00137-US.txt

Output Set: N:\CRF4\09232005\J548748.raw

## Please Note:

Seg#:55; Xaa Pos. 4

Use of n and/or Xaa have been detected in the Sequence Listing. Please review the Sequence Listing to ensure that a corresponding explanation is presented in the <220> to <223> fields of each sequence which presents at least one n or Xaa.

Seq#:13; N Pos. 1046,1047,1048,1049,1050,1051,1052,1053,1054,1055,1056,1057
Seq#:13; N Pos. 1058,1059,1060,1061,1062,1063,1064,1065,1066,1067,1068,1069
Seq#:13; N Pos. 1070,1071,1072,1073,1074,1075,1076,1077,1078,1079,1080,1081
Seq#:13; N Pos. 1082,1083,1084,1085,1086,1087,1088,1089,1090,1091,1092,1093
Seq#:13; N Pos. 1094,1095
Seq#:34; N Pos. 9590,9764
Seq#:36; N Pos. 9590,9764
Seq#:45; Xaa Pos. 4
Seq#:46; Xaa Pos. 2,6

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/548,748

DATE: 09/23/2005 TIME: 14:52:54

Input Set : A:\Sequence listing - 12810-00137-US.txt

Output Set: N:\CRF4\09232005\J548748.raw

L:11 M:270 C: Current Application Number differs, Replaced Current Application No

L:11 M:271 C: Current Filing Date differs, Replaced Current Filing Date

L:939 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13 after pos.:997

M:341 Repeated in SeqNo=13

L:2034 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:34 after pos.:9540

M:341 Repeated in SeqNo=34

L:2379 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36 after pos.:9540

M:341 Repeated in SeqNo=36

L:3092 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:45 after pos.:0

L:3117 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:46 after pos.:0

L:3328 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:55 after pos.:0